Expression of transforming growth factor-β1 and connective tissue growth factor in congenital biliary atresia and neonatal hepatitis liver tissue

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Genet. Mol. Res. 15 (1): gmr.15017217
Received August 15, 2015
Accepted October 19, 2015
Published February 19, 2016
DOI http://dx.doi.org/10.4238/ gmr.15017217

ABSTRACT. We investigated the expression of transforming growth factor-β1 (TGF-β1) and connective tissue growth factor (CTGF) in the liver tissue of infants with congenital biliary atresia and neonatal hepatitis, as well as the relationship between the expression of the two factors and liver fibrosis. Thirty-six infants who met the cholestasis criteria were classified into congenital biliary atresia and neonatal hepatitis groups. All specimens were stained with hematoxylin and eosin and Masson's trichrome, and the degree of liver fibrosis was assessed. The scope and level of CTGF and TGF-β1 expression in the different specimens was evaluated by

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immunohistochemistry and observation. Liver fibrosis in the congenital biliary atresia group was more advanced than that in the neonatal hepatitis group, and the difference was significant ($P < 0.01$). In the neonatal hepatitis patients, CTGF and TGF-β1 were mainly expressed in the hepatocytes, while they were expressed in both hepatocytes and biliary epithelial cells in the congenital biliary atresia patients, and in these patients the expression was significantly stronger than in the neonatal hepatitis patients ($P < 0.01$). With the aggravation of hepatic fibrosis, CTGF and TGF-β1 expression levels in liver tissue gradually increased, and their expression levels were significantly correlated ($P < 0.01$). Liver fibrosis is present in both congenital biliary atresia and neonatal hepatitis patients. The gradual increase of CTGF and TGF-β1 expression levels in liver tissue is associated with liver fibrosis. Early expression of CTGF and TGF-β1 in biliary epithelial cells may be involved in the pathogenesis of congenital biliary atresia.

Key words: Transforming growth factor-β1; Connective tissue growth factor; Neonatal hepatitis; Congenital biliary atresia; Liver fibrosis

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